

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
12 May 2005 (12.05.2005)

PCT

(10) International Publication Number
WO 2005/043124 A3

(51) International Patent Classification⁷: **A61K 31/395**,
31/44, 31/47, C07D 213/02, 215/00, 217/00, 401/02

(21) International Application Number:
PCT/US2004/036409

(22) International Filing Date:
1 November 2004 (01.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/515,631 30 October 2003 (30.10.2003) US

(71) Applicant (for all designated States except US):
GEORGETOWN UNIVERSITY [US/US]; 37th and O
Streets, NW, Washington, DC 20057-1408 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WOLF, Christian**
[DE/US]; 4219 31st Street North, Arlington, VA 22207
(US). **MEI, Xuefeng** [CN/US]; 1530 North 12th Street,
Apt. 206, Arlington, VA 22209 (US).

(74) Agents: **GORDON, Dana, M.** et al.; Patent Group, Foley
Hoag LLP, 155 Seaport Boulevard, Seaport World Trade
Center West, Boston, MA 02210-2600 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
21 July 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **CHIRAL 1,8-DIARYLNAPHTHALENES, METHODS OF MAKING THEM, AND THEIR USE AS SENSORS**

(57) Abstract: One aspect of the invention relates to 1,8-diarylnaphthalene compounds. In certain embodiments, a compound of the invention is an *N*-oxide of a 1,8-diarylnaphthalene. In certain embodiments, the aryl group is an optionally substituted acridyl group. In certain embodiments, a compound of the invention is a single stereoisomer. In certain embodiments, a compound of the invention is a single enantiomer. Another aspect of the present invention relates to a method of detecting the presence of an analyte in a sample by monitoring the fluorescence of a compound of the invention in a sample. In certain embodiments, the analyte is a metal ion. Another aspect of the present invention relates to a method of determining the enantiomeric purity of an analyte by monitoring the fluorescence of a compound of the invention in the presence of the analyte. In certain embodiments, the analyte is a compound that is capable of hydrogen bonding.

WO 2005/043124 A3